

MAR 31 2008

Doc Code: AP.PRE.REQ

PTO/SB/33 (07-05)

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

SCS-124-1158

Application Number

10/577,938

Filed

May 3, 2006

First Named Inventor

PHILLIPS

Art Unit

2814

Examiner

H. Weiss

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

- ☐ Applicant/Inventor
- ☐ Assignee of record of the entire interest. See 37 C.F.R. § 3.71. Statement under 37 C.F.R. § 3.73(b) is enclosed. (Form PTO/SB/96)

- ☒ Attorney or agent of record 27,393
(Reg. No.)

- ☐ Attorney or agent acting under 37CFR 1.34.
Registration number if acting under 37 C.F.R. § 1.34 _____

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.*

- ☒ *Total of 1 form/s are submitted.

Signature

Stanley C. Spooner

Typed or printed name

703-816-4028

Requester's telephone number

March 31, 2008

Date

This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and selection option 2.

BEST AVAILABLE COPY

RECEIVED
CENTRAL FAX CENTER

MAR 31 2008

**STATEMENT OF ARGUMENTS IN SUPPORT OF
PRE-APPEAL BRIEF REQUEST FOR REVIEW**

The following listing of clear errors in the Examiner's rejection and his failure to identify essential elements necessary for a *prima facie* basis of rejection is responsive to the second non-final Official Action mailed November 29, 2007 (Paper No. 20071128).

A. Error #1 – The Examiner fails to appreciate that the alleged lack of a written description is not only in Applicants' specification but is in known and present in previously published prior art

The Examiner alleges in the rejection under §112 that the present specification

does not contain a description/depiction of the quantum well being in at least partly intrinsic conduction regime when the transistor is unbiased and at normal operation temperature and at least one junction which is bistable to reduce the intrinsic conduction and confine charge carriers.

The Examiner's attention is directed to Applicants' specification, page 3, lines 4-11 which has almost literal correspondence with the subject matter of claims 9 and 16. The specification clearly points out that this information is disclosed in UK Patent Application Serial No. 2 362 506 which was published November 21, 2001. Applicants' specification merely restates that which is known in the art in view of this publication long prior to the present application's priority date of November 20, 2003.

It is also noted that the inventor of GB 2 362 506 is a co-inventor of the present application which is an improvement on this previous publication, where the improvement is the unobvious benefit in placing the transistor's narrow bandgap region "under compressive mechanical strain." Of course that improvement is not disclosed in the earlier GB patent. It is noted that the Examiner

BEST AVAILABLE COPY

PHILLIPS et al
Appl. No. 10/577,938
March 31, 2008

in this unfounded allegation, he is respectfully requested to indicate where any such teaching exists in the Phillips '674 reference.

It is possible that, because the Phillips combination of elements is similar to the combination of elements set out in the present specification, the Examiner may believe that "compressive mechanical strain" may be inherently disclosed in Phillips. However, the present specification pages 4-5 discloses that variations in the layer thicknesses as well as the differing lattice constants of the materials can be combined so as to provide the desired "compressive mechanical strain" which has the disclosed beneficial effect. Additionally, pages 5 and 6 disclose an embodiment shown in Figure 3 which has the appropriate materials and thicknesses to provide "light hole transport and permitting faster device speed with lower base access resistance for improved power gain." There is no recognition in the prior art that providing the claimed "compressive mechanical strain" has any beneficial effect and the Appellants discovery is a significant improvement in the arts.

Absent any teaching in the Phillips '674 reference of "compressive mechanical strain," the anticipation rejection clearly fails.

In fact, Phillips '674 actually "teaches away" from the claimed invention because it teaches "a structure that is strain balanced" A "strain balanced" structure is not a structure "under compressive mechanical strain" but rather one in which the lattice strain is balanced. Thus, the independent claims 1 and 16 would not even be obvious in view of Phillips '674 since it leads away from the claimed combination of elements and interrelationships. Accordingly, the Examiner has simply failed to meet his burden of establishing a *prima facie* case of anticipation of claims 1 and 16 or claims dependent therefrom in view of the Phillips '674 reference.

BEST AVAILABLE COPY

PHILLIPS et al
Appl. No. 10/577,938
March 31, 2008

makes no allegation that that improvement (recited in independent claims 1 and 16) is not fully supported in the present application.

The with respect to the first paragraph of §112 is, did the inventor at the time the application was filed, "have" possession of the claimed invention. Because of the literal correspondence between the subject matter of claim 9 as well as the corresponding subject matter of claim 16 in Applicants' specification page 3, lines 5-11, clearly indicates that Applicants had possession of this aspect of the claimed invention when the application was filed.

While it is possible that the Examiner may have overlooked this portion of Applicants' specification, the recited portion of the specification clearly meets the requirements of §112 (first paragraph) with respect to claims 9 and 16 and any further rejection thereunder is respectfully traversed.

B. Error #2 – The Examiner fails to establish where Phillips '674 contains any disclosure of "at least one narrow bandgap region under compressive mechanical strain" as required by independent claims 1 and 16

While the Examiner alleges in the paragraph bridging pages 2 and 3 that Phillips '674 shows the provision of "compressive mechanical strain," he fails to identify any teaching in the prior art reference. In fact, the Examiner suggests that page 1C, lines 21 and 22 of Phillips '674 has to do with "providing compressive mechanical strain" when, in fact, the cited portion of Phillips '674 states "[i]t should be noted that in all cases the layers are nominally undoped, but may contain unintentional doping of either type." This language has nothing to do with any mechanical straining of any layer, let alone compressive strain of the narrow bandgap region.

There is no disclosure in Phillips '674 that there is any doping which provides "at least one narrow bandgap region under compressive mechanical strain." Should the Examiner persist

PHILLIPS et al
Appl. No. 10/577,938
March 31, 2008

RECEIVED
CENTRAL FAX CENTER

MAR 31 2008

C. Error #3 – The Examiner fails to even allege that Phillips '337 contains any suggestion of "at least one narrow bandgap region under compressive mechanical strain"

While with Phillips '674, the Examiner erroneously alleges that there is a disclosure of "compressive mechanical strain" and merely fails to identify where that disclosure exists in the Phillips '674 patent (and as noted above, this clearly does not exist in Phillips '674). Here, with reference to the Phillips '337 patent, the Examiner does not even allege that it has any teaching of the claimed bandgap region "under compressive mechanical strain."

Without an allegation that Phillips '337 discloses the interrelationships set out in Applicants' independent claims 1 and 16 which result in the claimed "compressive mechanical strain," the anticipation rejection of independent claim 1 over Phillips '337 is simply incorrect and comprises reversible error.

D. Error #4 – There is no basis for any obviousness rejection over Phillips '674 and/or Phillips '337

To the extent the Examiner may contend that independent claims 1 and 16 recite structure and structural combinations which would be obvious in view of either Phillips '674 or Phillips '337, it should be noted that the provisions of 35 USC §103(c) may apply, in that these two references were owned by the same person or subject to an obligation of assignment to the same person, i.e., QinetiQ Limited, the assignee of the current application.

Moreover, even if §103(c) were not appropriate, there is either no disclosure of "compressive mechanical strain" (as in Phillips '337) and a specific teaching away from "compressive mechanical strain" (in Phillips '674's teaching of "strain balance"), and accordingly any rejection under 35 USC §103 would clearly fail.

PHILLIPS et al
Appl. No. 10/577,938
March 31, 2008

SUMMARY

A brief review of Applicants' specification will show literal antecedent basis for the limitation disclosed in claim 9 and recited in claim 16 and therefore Applicants completely complies with the §112 (first paragraph) requirement of a written description in the specification. Neither the Phillips '674 patent nor the Phillips '337 patent contains any disclosure of "at least one narrow bandgap region under compressive mechanical strain." Thus, because all claimed elements and structural interrelationships are not shown in a single prior art reference, there is no basis for an "anticipation" rejection. In fact, because Phillips '674 teaches "strain balance," it would lead one of ordinary skill in the art away from Applicants' claimed combination of elements.

As a result of the above, there is simply no support for the rejection of Applicants' independent claims 1 and 16 or claims dependent thereon under 35 USC §112 and/or §102. Applicants respectfully request that the Pre-Appeal Panel find that the application is allowed on the existing claims and prosecution on the merits should be closed.

BEST AVAILABLE COPY